

REMARKS/ARGUMENTS

Claims 1-3, 5, 9-11 and 14-21 are active.

The claimed invention provides cyan, yellow and magenta recording inks comprising: water, a wetting agent comprising 3-methyl-1,3-butanediol, a surfactant represented by Formula (I) as shown in Claim 1, and a colorant which is an aqueous dispersion of polymer fine particles containing a colorant.

Applicants again respectfully note that Example 19 of Table 3 of the specification shows significant increase in color saturation of all color hues in comparison to conventional inks according to Comparative examples 10-13. Significant improvement in color saturation obtained according to the claimed invention is also shown in the attached Declaration under 37 C.F.R. §1.132, by Mr. Michihiko Namba, a named inventor in this application. The experimental data provided in the Declaration describes inks prepared in the same manner as Example 19, with the difference that Example A, which is representative of the presently claimed invention was prepared using the surfactant FSO-100 which is represented by Formula (I) where m is 0-10 and n is 1-25. The ink of Comparative Example A was also made in the same manner as Example 19, with the exception that the surfactant used was FT-110, an anionic surfactant not of Formula (I), as described in the Declaration. The color values for Examples 19, A, and Comparative Example A are shown in the following Table.

	Yellow	Magenta	Cyan	Red	Green	Blue
Example 19	82.09	61.88	51.67	55.92	44.98	38.96
A	81.00	61.44	50.58	55.74	44.34	37.82
Comp. A	78.92	59.92	49.69	54.22	42.16	35.78

As indicated by the values in the Table, Examples 19 and A, both having the formulation according to the claimed invention have significantly higher color saturation than the comparative example which does not have the claimed composition.

Nowhere does any of the cited references disclose or suggest such significant improvement in color saturation for inks containing 3-methyl-1,3-butanediol and the surfactant having the structure represented by Formula (I) as obtained according to the claimed invention.

The rejection of Claims 1-3, 5, 9-11, 14-16 and 18-21 under 35 U.S.C. 103(a) over Namba et al. (U.S. 2005/0054751) in view of Ichikawa (U.S. 5,980,624) and Nagashima et al. (U.S. 2005/0170989) is respectfully traversed.

Namba describes an **aqueous** ink composition comprising a polymer emulsion of polymer fine particles containing coloring material, a first hydroxy compound, a second hydroxyl compound having 8 to 11 carbon atoms, a glycol ether having 8 to 11 carbon atoms, a water soluble organic solvent, at least one surfactant and at least one fluorine surfactant. Nowhere does Namba disclose an ink composition containing 3-methyl-1,3-butanediol and the surfactant represented by Formula (I) according to the presently claimed invention and nowhere is there a disclosure or suggestion that color saturation would be improved in an ink composition as according to the presently claimed invention as shown in the above Table.

The Office has acknowledged that Namba does not disclose or suggest a wetting agent comprising 3-methyl-1,3-butanediol (Official Action dated June 10, 2009, page 4, lines 1-2), and has cited Ichikawa to show a wetting agent containing 3-methyl-1,3-butanediol.

Ichikawa describes an **oil base ink composition** containing a solvent, a solvent evaporation-inhibiting additive, a dye or pigment colorant and other additives. Ichikawa describes in Col. 1, lines 13-49, the disadvantages of a water base ink, in comparison to an oil-based ink. This reference is directed to an oil-base ink which does not dry-up in the pen

tip (Col. 2, lines 12-14). Ichikawa actually teaches away from use of a water-base ink in Col. 7, lines 8-11, by stating:

Further, since water soluble materials are not contained, the print seals, drawn lines and records obtained by sealing, writing and printing are durable and have a good water resistance.

The solvent of the Ichikawa composition is an alcohol, an ether, an ester or a mixture thereof (Col. 3, lines 6-45). This reference describes some 15 alcohols, 30 ethers and 27 esters as examples of solvents which can be employed. Nowhere does this reference point to 3-methyl-1,3-butanediol as providing any advantage over the many other solvents and solvent combinations described and nowhere is an example of the use of 3-methyl-1,3-butanediol provided. Therefore, Applicants respectfully submit that this reference would have provided no motivation to one of ordinary skill in the art, at the time of the present invention, to employ 3-methyl-1,3-butanediol in a water-based ink formulation or to expect the significant improvement in color saturation obtained in the water-based ink of the present invention.

The Office has also acknowledged that Namba does not disclose or suggest a fluorine compound according to Formula (I)(Official Action dated June 10 ,2009, page 4, lines 1-5), and has cited Nagashima to show an ink composition containing a compound according to Formula (I). Nowhere does this reference disclose or suggest an aqueous recording ink comprising 3-methyl-1,3-butanediol, the fluorine compound according to Formula (I) and an aqueous dispersion of polymer fine particles, as according to the claimed invention.

The Office has alleged(Official Action dated June 10 ,2009, page 5, lines 3-6 and lines 13-15) that it would have been obvious to modify Namba with the description of Ichikawa and Nagashima to have an ink composition with excellent drying property and high quality printed image.

Applicants note that in reversing an obviousness rejection in *Ex parte* SUSUMU TANAKA and YASUO MURAKAMI (Appeal 2007-3845; Decided: March 28, 2008) the Board of Patent Appeals and Interferences stated:

In order to establish a prima facie case of obviousness, the Examiner must show that each and every limitation of the claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988). “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)

Moreover, in a Precedential Opinion rendered by the Board of Patent Appeals and Interferences in *Ex parte* Whalen II (Appeal 2007-4423, Application 10/281,142) on July 23, 2008, the Board stated:

“The KSR Court noted that obviousness cannot be proven merely by showing that the elements of a claimed device were known in the prior art; it must be shown that those of ordinary skill in the art would have had some “apparent reason to combine the known elements in the fashion claimed.””

“The Examiner has not persuasively explained why a person of ordinary skill in the art would have had a reason to modify the compositions taught by Evans, Greff’767, or Taki in a way that would result in the compositions defined by the claims on appeal. Therefore, The Examiner has not made out a prima facie case of obviousness under 35 U.S.C. § 103.”

Applicants respectfully submit that the Office has not explained why one of ordinary skill in the art, at the time of the present invention, would have looked to Ichikawa, which is directed to oil-based inks and teaches away from aqueous inks, and specifically selected 3-methyl-1,3-butanediol from the many solvents listed to be combined with the surfactant of Formula (I) to obtain the present invention. Applicants that only in hindsight of the present invention would such guidance be available.

When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the

combination other than hindsight gleaned from the invention itself.
Interconnect Planning Corp. 774 F.2d, 1143, 227 USPQ 551.

Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co.* 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984)

The Office has not provided any reasonable explanation of how or why one of ordinary skill in the art would have combined the cited references to obtain the claimed invention, at the time of the present invention.

Furthermore, as indicated above and in the attached declaration, Applicants have shown significant improvement in color saturation is obtained with the recording ink composition of the claimed invention. None of the references, alone, or in combination disclose or suggest such improvement.

In view of all the above, Applicants respectfully submit that the cited combination of references neither discloses nor suggests the claimed invention and therefore, cannot render the present invention obvious. Withdrawal of the rejection of Claims 1-3, 5, 9-11, 14-16 and 18-21 under 35 U.S.C. 103(a) over Namba in view of Ichikawa and Nagashima is respectfully requested.

The rejection of Claim 17 under 35 U.S.C. 103(a) over Namba in view of Kakuda et al. (U.S. 6,109,728) is respectfully traversed.

Claim 17 indirectly depends from Claim 1 and includes all the description of the independent claim. The Office has acknowledged that Namba does not disclose or suggest all the description of Claim 1 (Official Action dated June 10, 2009, page 4, lines 1-5). Kakuda is directed to an ink-jet printing head and does not cure the deficiencies of Namba described above. Therefore, the cited combination of references cannot render Claim 17

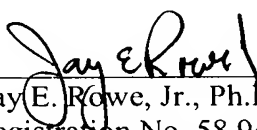
Application No. 10/593,345
Reply to Office Action of June 10, 2009

obvious. Accordingly, withdrawal of the rejection of Claim 17 under 35 U.S.C. 103(a) over Namba in view of Kakuda is respectfully requested.

Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Jay E. Rowe, Jr., Ph.D.
Registration No. 58,948

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)